

Work Order ID 151198

\*151198\*

Page 1

September 13, 2016 3:48:46 PM

Item ID: D212-725-1-933

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Tube Assembly

Start Date: 9/12/2016 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 10/17/2016 Req'd Qty: 1.00

\*1\*

Customer:

Reference:

Approvals: Process Plan: SL Date: SEP 13 2016

Tooling:

Date:

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_

Date:

Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr                       | Revision Nbr             |                      |         |        |              |               |               |                  |                |
| D212-725-1                     | D <u>04253</u>           |                      |         |        |              |               |               |                  |                |

100

0.00

\*100\*

Purchasing

Purchasing

Memo

0.00

Issue P/O: 33759

Ship to Cintube: QTY P# DESCRIPTION

- (1) AN818-4D NUT

- (1) MS20819 4D SLEEVE

- (4.5 ft) MS052-01R0.250W0.035 (length may vary)

\*\*\*Fabricate as per dwg D212-725-1\*\*\*

Purchase Part Number: D212-725-1-933

Supplier: Cintube

Certificate of conformity is required

1

SEP 23 2016

DAS  
13  
9-89

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                              |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | QC / QA Coordinator Approval                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                              |  |
| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>             Environment <input type="checkbox"/><br/>             Design <input type="checkbox"/><br/>             Doc/Data <input type="checkbox"/><br/>             Equip/Tooling <input type="checkbox"/><br/>             Handling/Pre <input type="checkbox"/><br/>             Material <input type="checkbox"/><br/>             Internal Transport <input type="checkbox"/><br/>             Tribal Knowledge <input type="checkbox"/><br/>             LOA <input type="checkbox"/><br/>             Substation <input type="checkbox"/><br/>             Past Expiry Date <input type="checkbox"/><br/>             Misidentified <input type="checkbox"/> </div> <div>             No Re-verification <input type="checkbox"/><br/>             Operator <input type="checkbox"/><br/>             Offset/Setup <input type="checkbox"/><br/>             Supplier <input type="checkbox"/><br/>             Training <input type="checkbox"/><br/>             Use for Testing <input type="checkbox"/><br/>             Poor Information <input type="checkbox"/><br/>             Rushing <input type="checkbox"/><br/>             Product Improvement <input type="checkbox"/><br/>             Process Improvement <input type="checkbox"/><br/>             Manufacturing Process <input type="checkbox"/><br/>             Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>             Pressure/Forced <input type="checkbox"/><br/>             Bending <input type="checkbox"/><br/>             Centre Not Concentric <input type="checkbox"/><br/>             Cracks <input type="checkbox"/><br/>             Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>             Cuffs <input type="checkbox"/><br/>             Crushing <input type="checkbox"/><br/>             Heat Treat <input type="checkbox"/><br/>             Wave/Twist in Tube <input type="checkbox"/><br/>             Marks/Chatter <input type="checkbox"/> </div> <div>             Temperature/Cure <input type="checkbox"/><br/>             Set-up <input type="checkbox"/><br/>             BOM/Route <input type="checkbox"/><br/>             Broken/Damage/Defect <input type="checkbox"/><br/>             Inspection Incomplete/Unqualified <input type="checkbox"/><br/>             Contamination <input type="checkbox"/><br/>             Countersink <input type="checkbox"/><br/>             Cut Too Short <input type="checkbox"/><br/>             Instructions Incomplete/Unclear <input type="checkbox"/><br/>             Drill Holes <input type="checkbox"/> </div> <div>             Power Loss/Surge <input type="checkbox"/><br/>             Folio/Program <input type="checkbox"/><br/>             Grain <input type="checkbox"/><br/>             Weld <input type="checkbox"/><br/>             Wrong Stock Pulled <input type="checkbox"/><br/>             Out of Sequence <input type="checkbox"/><br/>             Off-set <input type="checkbox"/><br/>             Mislabeled <input type="checkbox"/><br/>             Fit/Function <input type="checkbox"/><br/>             Misaligned/off center <input type="checkbox"/> </div> <div>             Positioned Wrong <input type="checkbox"/><br/>             Outside Dimensions <input type="checkbox"/><br/>             Over/Under tolerance <input type="checkbox"/><br/>             Part Incorrect <input type="checkbox"/><br/>             Part Lost/Missing <input type="checkbox"/><br/>             Part Moved <input type="checkbox"/><br/>             Drawing <input type="checkbox"/><br/>             Finish <input type="checkbox"/><br/>             Misread <input type="checkbox"/><br/>             Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                              |  |





DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                              |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | MRB (QSI042) Approval                        |  |
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| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                              |  |

**Work Order ID 151198**

September 13, 2016 3:48:46 PM

**\*151198\***

Page 3

Item ID: D212-725-1-933

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Tube Assembly

Start Date: 9/12/2016 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 10/17/2016 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals:

Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start

**\*NR1\***

QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop

**\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140

QC3- Inspect Part Finish

0.00

**\*140\***

QC

Memo

0.00

Quality Control

DAS

38

9-89

NOV 18 2016

150

Identify as per dwg & Stock Location: SH156A

0.00

**\*150\***

Packaging

Memo

0.00

Packaging

DAS

6

9-89

NOV 18 2016

160

QC21- Final Inspection - Work Order Release

0.00

**\*160\***

QC

Memo

0.00

Quality Control

DAS

21

9-89

NOV 18 2016

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |                                                                                                                   |  |  |
|--------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-------------------------------------------------------------------------------------------------------------------|--|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div> |  |  |                                                                                                                   |  |  |
| Date :                                                       |  | Step #:                                                                                                                                                                            |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  | <b>MRB (QSI042) Approval</b><br><br><div style="border: 1px solid black; height: 150px; margin-top: 10px;"></div> |  |  |
| Description Work Order Deviation                             |  |                                                                                                                                                                                    |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |                                                                                                                   |  |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |                                                                                                                   |  |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |                                                                                                                   |  |  |
|                                                              |  |                                                                                                                                                                                    |  | Completed By                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |                                                                                                                   |  |  |
|                                                              |  |                                                                                                                                                                                    |  | Lead hand / Supervisor Approval Verification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |                                                                                                                   |  |  |
|                                                              |  |                                                                                                                                                                                    |  | QC / QA Coordinator Approval                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |                                                                                                                   |  |  |

| Root Cause                                  |                                                |                                                 | FAULT CATEGORY                                             |                                                |                                               |  |
|---------------------------------------------|------------------------------------------------|-------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|--|
| Environment <input type="checkbox"/>        | <input type="checkbox"/> No Re-verification    | <input type="checkbox"/> Pressure/Forced        | <input type="checkbox"/> Temperature/Cure                  | <input type="checkbox"/> Power Loss/Surge      | <input type="checkbox"/> Positioned Wrong     |  |
| Design <input type="checkbox"/>             | <input type="checkbox"/> Operator              | <input type="checkbox"/> Bending                | <input type="checkbox"/> Set-up                            | <input type="checkbox"/> Folio/Program         | <input type="checkbox"/> Outside Dimensions   |  |
| Doc/Data <input type="checkbox"/>           | <input type="checkbox"/> Offset/Setup          | <input type="checkbox"/> Centre Not Concentric  | <input type="checkbox"/> BOM/Route                         | <input type="checkbox"/> Grain                 | <input type="checkbox"/> Over/Under tolerance |  |
| Equip/Tooling <input type="checkbox"/>      | <input type="checkbox"/> Supplier              | <input type="checkbox"/> Cracks                 | <input type="checkbox"/> Broken/Damage/Defect              | <input type="checkbox"/> Weld                  | <input type="checkbox"/> Part Incorrect       |  |
| Handling/Pre <input type="checkbox"/>       | <input type="checkbox"/> Training              | <input type="checkbox"/> Crimp/Kink/Ripple/Wave | <input type="checkbox"/> Inspection Incomplete/Unqualified | <input type="checkbox"/> Wrong Stock Pulled    | <input type="checkbox"/> Part Lost/Missing    |  |
| Material <input type="checkbox"/>           | <input type="checkbox"/> Use for Testing       | <input type="checkbox"/> Cuffs                  | <input type="checkbox"/> Contamination                     | <input type="checkbox"/> Out of Sequence       | <input type="checkbox"/> Part Moved           |  |
| Internal Transport <input type="checkbox"/> | <input type="checkbox"/> Poor Information      | <input type="checkbox"/> Crushing               | <input type="checkbox"/> Countersink                       | <input type="checkbox"/> Off-set               | <input type="checkbox"/> Drawing              |  |
| Tribal Knowledge <input type="checkbox"/>   | <input type="checkbox"/> Rushing               | <input type="checkbox"/> Heat Treat             | <input type="checkbox"/> Cut Too Short                     | <input type="checkbox"/> Mislabeled            | <input type="checkbox"/> Finish               |  |
| LOA <input type="checkbox"/>                | <input type="checkbox"/> Product Improvement   | <input type="checkbox"/> Wave/Twist in Tube     | <input type="checkbox"/> Instructions Incomplete/Unclear   | <input type="checkbox"/> Fit/Function          | <input type="checkbox"/> Misread              |  |
| Substation <input type="checkbox"/>         | <input type="checkbox"/> Process Improvement   | <input type="checkbox"/> Marks/Chatter          | <input type="checkbox"/> Drill Holes                       | <input type="checkbox"/> Misaligned/off center | <input type="checkbox"/> Turning Sequence     |  |
| Past Expiry Date <input type="checkbox"/>   | <input type="checkbox"/> Manufacturing Process | <b>OTHER :</b> _____                            |                                                            |                                                |                                               |  |
| Misidentified <input type="checkbox"/>      | <input type="checkbox"/> Past Due              |                                                 |                                                            |                                                |                                               |  |

# Picklist Print

Friday, September 23, 2016 1:36:49 PM

Page 1

Work Order ID: 151198

**\*151198\***

Parent Item: D212-725-1-933

**\*D212-725-1-933\***

Parent Item Name: Tube Assembly

Start Date: 9/12/2016

Required Date: 10/17/2016

Start Qty: 1.00

Required Qty: 1.00

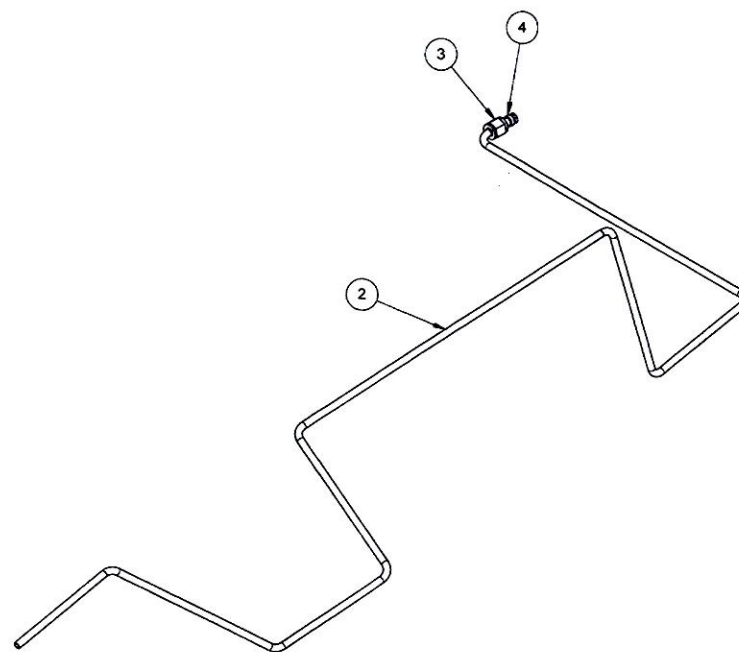
Comments: IPP RevA: New issue DD verified by:EC

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| D212-725-1-933P                 |                        | Purchased     |             | No                  |                  |                 | Each               | 0.0000         |             | 1            |               |                |        |
| <b>*D212-725-1-933P*</b>        |                        |               |             |                     |                  |                 |                    |                | **          |              |               |                |        |
| Tube Assembly                   |                        |               |             |                     |                  |                 |                    |                |             |              |               |                |        |

1x SP/6-11-17



| ITEM | QTY<br>-933 | PART NUMBER    | DESCRIPTION   |
|------|-------------|----------------|---------------|
| 1    | X           | D212-725-1-933 | TUBE ASSEMBLY |
| 2    | 1           | D212-725-1-199 | TUBING        |
| 3    | 1           | AN818-4D       | NUT           |
| 4    | 1           | MS20819-4D     | SLEEVE        |



**D212-725-1-933 TUBE ASSEMBLY**

**NOTES:**

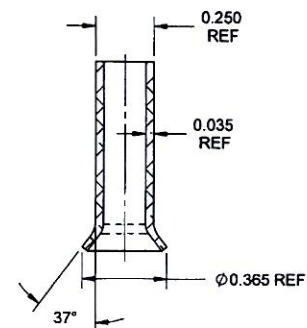
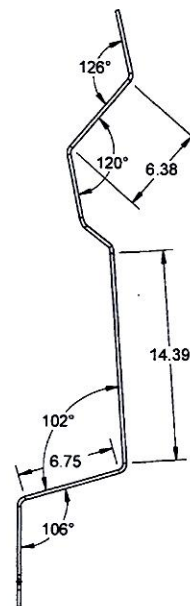
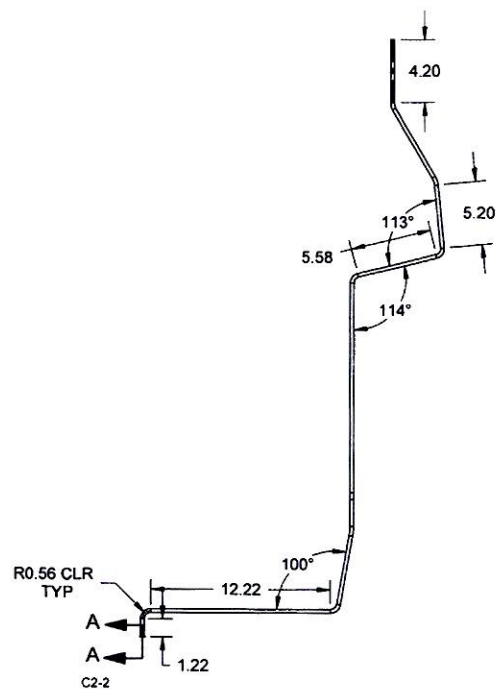
- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.16 lbs

|                      |                    |                                                                                                                                                                                                                                                                                         |  |              |          |
|----------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------|----------|
| A                    |                    | NEW ISSUE                                                                                                                                                                                                                                                                               |  | RF           | 11.02.24 |
| REV.                 |                    | DESCRIPTION                                                                                                                                                                                                                                                                             |  | BY           | DATE     |
| DESIGN               | RF                 | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                |  |              |          |
| DRAWN                | RF                 |                                                                                                                                                                                                                                                                                         |  |              |          |
| CHECKED              | <i>[Signature]</i> | DRAWING NO. <b>D4253</b>                                                                                                                                                                                                                                                                |  | REV. A       |          |
| MFG. APPR.           | <i>[Signature]</i> |                                                                                                                                                                                                                                                                                         |  | SHEET 1 OF 2 |          |
| APPROVED             | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                                                   |  | SCALE        |          |
| DE APPR.             | <i>[Signature]</i> | <b>TUBE ASSEMBLY</b>                                                                                                                                                                                                                                                                    |  | NTS          |          |
| DATE <b>11.02.24</b> |                    | COPYRIGHT © 2011 BY DART AEROSPACE LTD<br><small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> |  |              |          |

**RELEASED**  
 2011-08-25  
*[Signature]*

*40151098*





B7-2  
SECTION A-A  
(FINISH FLARE THIS  
END AFTER ASSEMBLY)

**D212-725-1-199 TUBING**  
(MANUFACTURE PER TEMPLATE DT8915)

**RELEASED**  
2011-08-25

**NOTES:**

- 1) MATERIAL: 5052-OTR ALUMINUM ROUND TUBING,  $\phi 0.250 \times 0.035$  WALL  
PER AMS-WW-T-700/4  
OR ASTM-B-210-02  
PER DART SPEC. M5052-OT
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A

|            |          |                                                                                                                                                                                                                                |        |
|------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| DESIGN     | RF       | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                       |        |
| DRAWN      | RF       |                                                                                                                                                                                                                                |        |
| CHECKED    | RF       | DRAWING NO.<br><b>D4253</b>                                                                                                                                                                                                    | REV. A |
| MFG. APPR. |          | TITLE                                                                                                                                                                                                                          | SCALE  |
| APPROVED   |          | <b>TUBE ASSEMBLY</b>                                                                                                                                                                                                           | NTS    |
| DE APPR.   |          | COPYRIGHT © 2011 BY DART AEROSPACE LTD                                                                                                                                                                                         |        |
| DATE       | 11.02.24 | THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |        |



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

# PURCHASE ORDER

Purchase Order ID PO33759

Purchase Order Date 9/23/2016

PO Print Date 9/23/2016

Page Number 1 of 3

Order From :

VC-ATB001

AGGRESSIVE TUBE BENDING  
9750 - 188TH STREET  
SURREY, B.C. V4N 3M2  
CANADA

Ship To : DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**E-MAILED**

SEP 23 2016

Contact Name

Vendor Phone

604-882-4872

Ship To Contact

Ship To Phone

Ship Via:

FedEx Overnight collect

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

Destination-Collect

| Line Nbr | Reference Vendor Part Number | Description/ Mfg ID    | Req Date/ Taxable | CD | Req Qty/ Unit of Measure | PO Unit Price | Extended Price |
|----------|------------------------------|------------------------|-------------------|----|--------------------------|---------------|----------------|
| 1        | D212-725-1-931P              | Manifold Tube Assembly | 10/24/2016        |    | 2.00                     | \$825.00      | \$1,650.00     |
|          |                              |                        | Yes               |    | Each                     |               |                |
|          |                              |                        | 10/24/2016        |    |                          |               |                |

MANUFACTURE AS PER DWG D212-725-1-931 REV. B  
B151191  
MAKE FROM MATERIAL 304/316 ROUND TUBING 1" X .049"

Line Total: \$1,650.00

|   |                 |               |            |  |      |          |          |
|---|-----------------|---------------|------------|--|------|----------|----------|
| 2 | D212-725-1-933P | Tube Assembly | 10/24/2016 |  | 1.00 | \$600.00 | \$600.00 |
|   |                 |               | Yes        |  | Each |          |          |
|   |                 |               | 10/24/2016 |  |      |          |          |

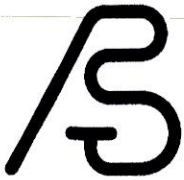
MANUFACTURE AS PER DWG D212-725-1-933 REV. D  
B151198  
MAKE FROM MATERIAL 5052-0 ROUND TUBING 0.250" X .035"

Line Total: \$600.00

8216-11-17

Note:

9/23/2016

**AGGRESSIVE TUBE BENDING INC.**

9750 188th Street  
Surrey, BC V4N 3M2  
Phone: 1-604-882-4872  
Fax: 1-604-882-4873

**PACKLIST**

Packlist ID: 29181  
Date: 2016-11-14  
Page: 1 of 1

Shipped By: TEPRY

| Sold To Address                                                                | Ship To Address                                                                |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| DART AEROSPACE LTD<br>1270 ABERDEEN STREET<br>HAWKESBURY, ON K6A 1K7<br>CANADA | DART AEROSPACE LTD<br>1270 ABERDEEN STREET<br>HAWKESBURY, ON K6A 1K7<br>CANADA |

|              |     |     |                      |  |               |           |          |                 |           |
|--------------|-----|-----|----------------------|--|---------------|-----------|----------|-----------------|-----------|
| CUSTOMER ID  |     |     | CUSTOMER PO          |  | PAYMENT TERMS |           | F.O.B.   |                 |           |
| 2883         |     |     | PO33759              |  | Net 30        |           |          |                 |           |
| SALES REP ID |     |     | SHIPPING METHOD      |  |               | SHIP DATE |          | OUR ORDER NUMBE |           |
| YT           |     |     | FEDEX 1-800-463-3339 |  |               | NOV 15/16 |          | 16-1229         |           |
| QUANTITY     |     |     |                      |  |               |           | CUSTOMER |                 |           |
| ORD          | SHF | BCK | PART ID              |  | DESCRIPTION   |           | PART NO. |                 | DRAWING # |

|   |   |   |                              |                |
|---|---|---|------------------------------|----------------|
| 2 | 2 | 0 | SUP/FAB 1 X .049 316 SS      | D212-725-1-931 |
| 1 | 1 | 0 | SUP/FAB 1/4 X .035 6061 T4 ✓ | D212-725-1-933 |
| 1 | 1 | 0 | SUP/FAB 3/4 X .035 6061 T4   | D212-725-1-941 |
| 1 | 1 | 0 | SUP/FAB 3/4 X .035 6061 T4   | D212-725-1-943 |
| 2 | 2 | 0 | SUP/FAB 3/4 X .035 6061 T4   | D212-725-1-945 |

**ORDER SPECIFICATIONS**

SHIP OVERNIGHT

8/16-11-17

RECEIVED BY: \_\_\_\_\_



# CERTIFICATE OF CONFORMANCE

**PYROTEK** AEROSPACE LTD.

CUSTOMER P.O. # 16-1229

CERT: 97592

# 101 - 2285 Queen Street, Abbotsford, B.C. V2T 6J3

TEL: (604) 859-4484 FAX: (604) 859-4481

PYROTEK W.O. #: 97521

W.O. Date: 10/26/2016

CERT DATE: November, 01 2016

**CUSTOMER: Aggressive Tube Bending Inc.**

9750 - 188th Street, Surrey, BC V4N 3M2

**MATERIAL:** 6061-T6

ALUMINUM TUBE

0.035" - 0.035" BARE

**PROCESS DESCRIPTION:** Solution Heat Treat to "W" Condition / Natural Age to 6061-T42 Temper

| QUANTITY | PART NUMBER | PARTS DESCRIPTION | REFERENCE |
|----------|-------------|-------------------|-----------|
| 2 ea.    | N/A         | SEAMLESS TUBE     | N/A       |
| 4 ea.    | N/A         | SEAMLESS TUBE     |           |

| BATCH # | PROCESS             | TIME         | TEMPERATURE   | FURNACE | SPECIFICATIONS |
|---------|---------------------|--------------|---------------|---------|----------------|
| 39487   | Solution Heat Treat | 0:36 Minutes | 985 deg. F.   | 6       | AMS 2770 Rev N |
|         | Quench              | 7 Second     | 71/73 deg. F. |         |                |

Natural Age

Ambient

Glycol Quench 22 % max

Air Cool Ambient

\* Parts exceeded Minimum Temper Requirements prior to 96 hr. period

## TEMPER VERIFICATION REPORT

SPECIFICATION: AMS 2658 "D"

HARDNESS: 64.3 - 64.6 HR15TW (1/4")

HARDNESS: 67.6 - 68.2 HR15TW (3/4")

## ELECTRICAL CONDUCTIVITY:

N/A % IACS (1/4")

N/A % IACS (3/4")

No E.C. per AMS 2770 L para. 4.4.1.2

PYROTEK Certifies that the items listed hereon have been HEAT TREATED IN ACCORDANCE with the above LISTED SPECIFICATION, have been inspected and tested and conform to all Contract or Purchase Order requirements. TEMPER IS CERTIFIED for the Items in their Present State of Condition. Documentation is on file.



QTY. ACCEPT

2+4

QTY. REJECT

0

MANAGER, QUALITY ASSURANCE

November 01, 2016

DATE





## PACKING LIST



DELIVERY NUMBER: 8003777557

ROUTE: Generic route DON'T USE WITH PLANT

PAGE:1 of 1

DATE:07NOV16

TIME:13:26:12

EMP:00011968

ORD TYP: ZOR 133

CURRENCY:CAD

TERMS:Pay immediately w/o

CUSTOMER PO:16-1229  
ORDER NUMBER:1002569947  
ORDER DATE:21OCT16

B 10016782  
I COD SALES VANCOUVER/BOTH TAX  
L 1 - 13511 CRESTWOOD PLACE  
L RICHMOND BC V6V 2E9  
T CANADA  
O

S 10016782  
H AGGRESSIVE TUBE BENDING  
I 604-882-4872  
P 9750 - 188 STREET  
T SURREY BC V4N 3M2  
O CANADA

S 1502  
H AVIALL VANCOUVER CSC  
I VANCOUVER SALES OFFICE  
P UNIT 1-13511 CRESTWOOD PLACE  
RICHMOND BC V6V 2E9  
FROM CANADA

| LINE             | PO LINE | MFG | ITEM DESCRIPTION               | ORDER QUANTITY | SHIP QUANTITY | QUANTITY BACK ORDER | UOM | CUSTOMER PRICE | EXTENDED CUSTOMER PRICE |
|------------------|---------|-----|--------------------------------|----------------|---------------|---------------------|-----|----------------|-------------------------|
| 00010            | 0       | 8M  | 5052-0-4<br>TUBE: AL,1/4INX6FT | 12             | 12            | 0                   | FT  |                |                         |
| BATCH 7364313004 |         |     |                                |                | 12            |                     |     |                |                         |

2 @ 1/4" x .035 WW-T-700 6' LONG  
16-1229  
DART AEROSPACE  
NOV 7/16  
TERRY

**This is not an Invoice.**  
**For payment processing, please refer to Invoice.**

## CERTIFICATE OF CONFORMANCE / CERTIFICAT DE CONFORMITE

I hereby certify that the aircraft parts appliances and/or aircraft materials described hereon were acquired from a source of supply that is consistent with the conditions under which the department of transport distributor approval number 35-86 has been granted. Je certifie par la par la presente que les pieces appareils et/ou materiaux d'avions decrits ci-dessus ont ete acquis d'une source d approvisionnement consistante avec les conditions sous lesquelles l'approbation du distruteur du department du transport no. 35-86 ont ete recue.

Rick Rantz, DSM

07NOV16  
Date

DISCOUNT TERMS APPLY ONLY TO SUB TOTAL  
ESCOMPTE APPLIQUES SUR SOUS TOTAL SEULEMENT.  
ALL RETURNED MERCHANDISE SUBJECT TO A  
HANDLING FEE. FRAIS DE MANUTENTION APPLIQUES  
SUR TOUTE MARCHANDISE RETOURNEE.

CUSTOMER COPY

**PACKING LIST**



DELIVERY NUMBER: 8003760751

ROUTE: Generic route DON'T USE WITH PLANT

PAGE:1 of 1  
DATE:02NOV16  
TIME:13:28:19  
EMP:00020887

ORD TYP: ZOR 133  
CURRENCY:CAD  
TERMS:Pay immediately w/o

CUSTOMER PO:16-1229  
ORDER NUMBER:1002569947  
ORDER DATE:21OCT16

B 10016782  
I COD SALES VANCOUVER/BOTH TAX  
L 1 - 13511 CRESTWOOD PLACE  
L RICHMOND BC V6V 2E9  
CANADA  
T  
O

S 10016782  
H AGGRESSIVE TUBE BENDING  
I 604-882-4872  
P 9750 - 188 STREET  
SURREY BC V4N 3M2  
CANADA  
T  
O

S 1502  
H AVIALL VANCOUVER CSC  
I VANCOUVER SALES OFFICE  
P UNIT 1-13511 CRESTWOOD PLACE  
RICHMOND BC V6V 2E9  
CANADA  
F  
R  
O  
M

| LINE  | PO LINE | MFG | ITEM DESCRIPTION                        | ORDER QUANTITY | SHIP QUANTITY | QUANTITY BACK ORDER | UOM | CUSTOMER PRICE | EXTENDED CUSTOMER PRICE |
|-------|---------|-----|-----------------------------------------|----------------|---------------|---------------------|-----|----------------|-------------------------|
| 00010 | 0       | 74  | AN818-16J<br>NUT: COUPLING,SS           | 2              | 2             | 0                   | EA  |                |                         |
|       |         |     | BATCH 7364391121                        |                | 2             |                     |     |                |                         |
| 00020 | 0       | 74  | MS20819-16J<br>SLEEVE: FLARED TUBE,CRES | 2              | 2             | 0                   | EA  |                |                         |
|       |         |     | BATCH 7364391128                        |                | 2             |                     |     |                |                         |

16-1229  
DART AEROSPACE  
NOV 3/16  
TERRY

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For payment processing, please refer to Invoice.**

**CERTIFICATE OF CONFORMANCE / CERTIFICAT DE CONFORMITE**

I hereby certify that the aircraft parts appliances and/or aircraft materials described hereon were acquired from a source of supply that is consistent with the conditions under which the department of transport distributor approval number 35-86 has been granted. Je certifie par la par la presente que les pieces appareils et/ou materiaux d'avions decrits ci-dessus ont ete acquis d'une source d approvisionnement consistante avec les conditions sous lesquelles l'approbation du distruteur du departement du transport no. 35-86 ont ete recue.

AV20 RS-06

Rick Rantz, DSM

02NOV16  
Date

DISCOUNT TERMS APPLY ONLY TO SUB TOTAL  
ESCOMPTE APPLIQUES SUR SOUS TOTAL SEULEMENT.  
ALL RETURNED MERCHANDISE SUBJECT TO A  
HANDLING FEE. FRAIS DE MANUTENTION APPLIQUES  
SUR TOUTE MARCHANDISE RETOURNEE.

CUSTOMER COPY





## PACKING LIST



DELIVERY NUMBER: 8003760750

ROUTE: Generic route DON'T USE WITH PLANT

PAGE:1 of 1

DATE:02NOV16

TIME:13:30:25

EMP:00020887

ORD TYP: ZOR 133

CURRENCY:CAD

TERMS:Pay immediately w/o

CUSTOMER PO:16-1229  
ORDER NUMBER:1002569947  
ORDER DATE:21OCT16

B 10016782  
I COD SALES VANCOUVER/BOTH TAX  
L 1 - 13511 CRESTWOOD PLACE  
L RICHMOND BC V6V 2E9  
CANADA  
T  
O

S 10016782  
H AGGRESSIVE TUBE BENDING  
I 604-882-4872  
P 9750 - 188 STREET  
SURREY BC V4N 3M2  
CANADA  
T  
O

S 1502  
H AVIALL VANCOUVER CSC  
I VANCOUVER SALES OFFICE  
P UNIT 1-13511 CRESTWOOD PLACE  
RICHMOND BC V6V 2E9  
CANADA  
F  
R  
O  
M

| LINE  | PO LINE | MFG | ITEM DESCRIPTION                               | ORDER QUANTITY | SHIP QUANTITY | QUANTITY BACK ORDER | UOM  | CUSTOMER PRICE | EXTENDED CUSTOMER PRICE |
|-------|---------|-----|------------------------------------------------|----------------|---------------|---------------------|------|----------------|-------------------------|
| 00010 | 0       | 28  | AN818-12D<br>NUT: COUPLING,AL 6 PCS            | 6              | (6)           | -1<br>-2<br>-2      | 0 EA |                |                         |
|       |         |     | BATCH 7364236911                               |                | 1             |                     |      |                |                         |
|       |         |     | BATCH 7364307345                               |                | 5             |                     |      |                |                         |
| 00020 | 0       | 28  | AN818-4D<br>NUT: COUPLING,AL 5 PCS ✓           | 5              | (5)           | -1                  | 0 EA |                |                         |
|       |         |     | BATCH 7364315360                               |                | 5             |                     |      |                |                         |
| 00030 | 0       | 28  | MS20819-12D<br>SLEEVE: FLARED TUBE,AL 10 PCS ✓ | 10             | (10)          | -1<br>-2<br>-2      | 0 EA |                |                         |
|       |         |     | BATCH 7364267964                               |                | (10)          |                     |      |                |                         |
| 00040 | 0       | 28  | MS20819-4D<br>SLEEVE: FLARED TUBE,AL 10 PCS    | 5              | (5)           | -1                  | 0 EA |                |                         |
|       |         |     | BATCH 7364087462 5 PCS                         |                | (5)           |                     |      |                |                         |

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## CERTIFICATE OF CONFORMANCE / CERTIFICAT DE CONFORMITE

I hereby certify that the aircraft parts appliances and/or aircraft materials described hereon were acquired from a source of supply that is consistent with the conditions under which the department of transport distributor approval number 35-86 has been granted. Je certifie par la par la presente que les pieces appareils et/ou materiaux d'avions decrits ci-dessus ont ete acquis d'une source d approvisionnement consistante avec les conditions sous lesquelles l'approbation du distributeur du departement du transport no. 35-86 ont ete recue.

AV20 RS-06

Rick Rantz, DSM

02NOV16  
Date

DISCOUNT TERMS APPLY ONLY TO SUB TOTAL  
ESCOMPTE APPLIQUES SUR SOUS TOTAL SEULEMENT.  
ALL RETURNED MERCHANDISE SUBJECT TO A  
HANDLING FEE. FRAIS DE MANUTENTION APPLIQUES  
SUR TOUTE MARCHANDISE RETOURNEE.

CUSTOMER COPY



允強實業股份有限公司  
YC INOX CO., LTD.

檢驗證明書  
INSPECTION CERTIFICATE

524彰化縣溪州鄉中山路二段270號  
No.270, Sec.4, Jungshan Rd., Shijou Shiang,  
Chang-Hwa, Taiwan, R.O.C.  
http://www.ycinox.com  
TEL : +886-4-8899666 FAX : +886-4-8899770



|                       |                                         |                                  |           |                          |              |
|-----------------------|-----------------------------------------|----------------------------------|-----------|--------------------------|--------------|
| 客戶名稱<br>Customer      | SAMUEL, SON&CO. LIMITED                 | 客戶編號<br>Customer No.             | FCA021    | 證明書編號<br>Certificate No. | 160512C0059  |
| 產品名稱<br>Production    | PRIME COLD ROLLED STAINLESS STEEL SHEET | 商業發票號碼<br>Commercial Invoice No. | J16050033 | 證明書日期<br>Date of Issue   | 2016/05/11   |
| 規範名稱<br>Specification | ASTM A240M-15b/A480M-16                 | 客戶採購案號<br>PO No.                 | V75284    | 訂單編號<br>Order No.        | EC16030150-3 |
| 鋼種<br>Steel Grade     | 304/304L                                | 提貨單編號<br>Weight No.              | C16050226 | P.I.號碼<br>P.I.NO.        | A10503098    |

| 項目<br>Item<br>No. | 爐 號<br>Heat No. | 產品規格<br>Product Description |                       |                     |              |               | 化學成份(%)<br>Chemical Composition |      |     |    |     |     |      |     |          |      | 拉伸試驗<br>Tension Test |     |      | *01<br>硬<br>度<br>HRC | *02<br>熱<br>處<br>理<br>T.W.Q. | 箱號<br>C/No. | Coil No  |
|-------------------|-----------------|-----------------------------|-----------------------|---------------------|--------------|---------------|---------------------------------|------|-----|----|-----|-----|------|-----|----------|------|----------------------|-----|------|----------------------|------------------------------|-------------|----------|
|                   |                 | 尺寸<br>Dimension             | 數量<br>Quantity<br>Pcs | 重量<br>Weight<br>kgs | 表面<br>Finish | 保護<br>Protect | 碳                               | 矽    | 錳   | 磷  | 硫   | 鎳   | 鉻    | 氮   | 降伏       | 抗拉   | 伸長率                  |     |      |                      |                              |             |          |
|                   |                 |                             |                       |                     |              |               | C                               | Si   | Mn  | P  | S   | Ni  | Cr   | N   | 0.2%Y.S. | T.S. | E.L.                 |     |      |                      |                              |             |          |
| Specification     |                 |                             |                       |                     |              |               | Min.                            | Max. | 30  | 75 | 200 | 45  | 30   | 800 | 1750     | 1950 | 100                  | 205 | 515  | 40                   | HRF                          | W/Q.        |          |
| 1                 | C34AT1600290    | 0.024" x48.0" x120.0"       | 75                    | 1,313               | 2B           | PI            | 23                              | 52   | 102 | 32 | 2   | 812 | 1829 | 65  | 288      | 644  | 54                   | 75  | 1050 | B2                   |                              |             | PG867    |
| 2                 | C34AT1600290    | 0.024" x48.0" x120.0"       | 75                    | 1,312               | 2B           | PI            | 23                              | 52   | 102 | 32 | 2   | 812 | 1829 | 65  | 288      | 644  | 54                   | 75  | 1050 | B3                   |                              |             | P6867    |
| 3                 | C34AT1600290    | 0.024" x48.0" x120.0"       | 74                    | 1,292               | 2B           | PI            | 23                              | 52   | 102 | 32 | 2   | 812 | 1829 | 65  | 288      | 644  | 54                   | 75  | 1050 | B4                   |                              |             | P6867    |
| 4                 | C34AW1504514    | 0.047" x48.0" x96.0"        | 54                    | 1,490               | 2B           | PI            | 20                              | 45   | 138 | 28 | 1   | 804 | 1802 | 74  | 285      | 677  | 63                   | 87  | 1050 | B8                   |                              |             | 4U659403 |
| 5                 | C34AW1504514    | 0.047" x48.0" x96.0"        | 53                    | 1,458               | 2B           | PI            | 20                              | 45   | 138 | 28 | 1   | 804 | 1802 | 74  | 285      | 677  | 63                   | 87  | 1050 | B9                   |                              |             | 4U659403 |
| 6                 | C34AW1504514    | 0.047" x48.0" x96.0"        | 53                    | 1,464               | 2B           | PI            | 20                              | 45   | 138 | 28 | 1   | 804 | 1802 | 74  | 285      | 677  | 63                   | 87  | 1050 | B10                  |                              |             | 4U659403 |
| 7                 | C34AW1504514    | 0.047" x48.0" x96.0"        | 53                    | 1,463               | 2B           | PI            | 20                              | 45   | 138 | 28 | 1   | 804 | 1802 | 74  | 285      | 677  | 63                   | 87  | 1050 | B11                  |                              |             | 4U659403 |
| 8                 | C34AW1504514    | 0.047" x48.0" x96.0"        | 53                    | 1,467               | 2B           | PI            | 20                              | 45   | 138 | 28 | 1   | 804 | 1802 | 74  | 285      | 677  | 63                   | 87  | 1050 | B12                  |                              |             | 4U659403 |
| 9                 | C34AW1600953    | 0.047" x48.0" x120.0"       | 48                    | 1,674               | 2B           | PI            | 19                              | 44   | 155 | 29 | 2   | 800 | 1830 | 50  | 301      | 676  | 52                   | 87  | 1050 | B13                  |                              |             | 9F690Y09 |
| 10                | C34AW1600953    | 0.047" x48.0" x120.0"       | 48                    | 1,670               | 2B           | PI            | 19                              | 44   | 155 | 29 | 2   | 800 | 1830 | 50  | 301      | 676  | 52                   | 87  | 1050 | B14                  |                              |             | 9F690Y09 |
| 11                | C34AW1600953    | 0.047" x48.0" x120.0"       | 48                    | 1,672               | 2B           | PI            | 19                              | 44   | 155 | 29 | 2   | 800 | 1830 | 50  | 301      | 676  | 52                   | 87  | 1050 | B15                  |                              |             | 9F690Y09 |
| 12                | C34AW1600953    | 0.047" x48.0" x120.0"       | 48                    | 1,672               | 2B           | PI            | 19                              | 44   | 155 | 29 | 2   | 800 | 1830 | 50  | 301      | 676  | 52                   | 87  | 1050 | B16                  |                              |             | 9F690Y09 |
| 13                | C34AW1600953    | 0.047" x48.0" x120.0"       | 48                    | 1,672               | 2B           | PI            | 19                              | 44   | 155 | 29 | 2   | 800 | 1830 | 50  | 301      | 676  | 52                   | 87  | 1050 | B17                  |                              |             | 9F690Y09 |
| 14                | C34AW1600953    | 0.047" x48.0" x120.0"       | 48                    | 1,670               | 2B           | PI            | 19                              | 44   | 155 | 29 | 2   | 800 | 1830 | 50  | 301      | 676  | 52                   | 87  | 1050 | B18                  |                              |             | 9F690Y09 |
| 15                | C34AW1600953    | 0.047" x48.0" x120.0"       | 47                    | 1,635               | 2B           | PI            | 19                              | 44   | 155 | 29 | 2   | 800 | 1830 | 50  | 301      | 676  | 52                   | 87  | 1050 | B19                  |                              |             | 9F690Y09 |
| 16                | C34AW1600953    | 0.047" x48.0" x120.0"       | 47                    | 1,636               | 2B           | PI            | 19                              | 44   | 155 | 29 | 2   | 800 | 1830 | 50  | 301      | 676  | 52                   | 87  | 1050 | B20                  |                              |             | 9F690Y09 |
| 17                | C34AW1600953    | 0.047" x48.0" x120.0"       | 47                    | 1,640               | 2B           | PI            | 19                              | 44   | 155 | 29 | 2   | 800 | 1830 | 50  | 301      | 676  | 52                   | 87  | 1050 | B21                  |                              |             | 9F690Y09 |
| 18                | C34AW1601251    | 0.06" x48.0" x96.0"         | 44                    | 1,510               | 2B           | PI            | 22                              | 40   | 141 | 30 | 1   | 804 | 1821 | 80  | 304      | 645  | 56                   | 87  | 1050 | B22                  |                              |             | 4X765403 |
| 19                | C34AW1601251    | 0.06" x48.0" x96.0"         | 43                    | 1,475               | 2B           | PI            | 22                              | 40   | 141 | 30 | 1   | 804 | 1821 | 80  | 304      | 645  | 56                   | 87  | 1050 | B23                  |                              |             | 4X765403 |
| TOTAL:            |                 |                             | 1,006                 | 29,185              |              |               |                                 |      |     |    |     |     |      |     |          |      |                      |     |      |                      |                              |             |          |

|                                                                                                                                                                                     |  |  |  |  |  |                                                                         |  |  |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|-------------------------------------------------------------------------|--|--|--|--|--|
| 附註 Remark                                                                                                                                                                           |  |  |  |  |  | 註解 Note                                                                 |  |  |  |  |  |
| ASME SA240/SA480                                                                                                                                                                    |  |  |  |  |  | Intergranular Corrosion Test (according to ASTM A262 Practice E) : OK   |  |  |  |  |  |
| P209680-                                                                                                                                                                            |  |  |  |  |  | Intergranular Corrosion Test (according to EN ISO 3651-2 Method A) : OK |  |  |  |  |  |
| P209688-693                                                                                                                                                                         |  |  |  |  |  | Intergranular Corrosion Test (according to ASTM A262 Practice A) : OK   |  |  |  |  |  |
| P209702-704                                                                                                                                                                         |  |  |  |  |  |                                                                         |  |  |  |  |  |
|                                                                                                                                                                                     |  |  |  |  |  | Visual Inspection(Surface) and Dimension Check : OK                     |  |  |  |  |  |
| Surveyor By                                                                                                                                                                         |  |  |  |  |  | 1.ISO 9001:2008 (No.01 100 056299)                                      |  |  |  |  |  |
| N/A                                                                                                                                                                                 |  |  |  |  |  | 2.PED / AD2000 (No.01 202 TWN/Q-05 0105)                                |  |  |  |  |  |
|                                                                                                                                                                                     |  |  |  |  |  | 3.ISO 14001:2004 (No.01 104 822 096385)                                 |  |  |  |  |  |
|                                                                                                                                                                                     |  |  |  |  |  | 4.OHSAS 18001:2007 (No.01 113 822 096385)                               |  |  |  |  |  |
| 茲證明本文所列產品，均依材料標準製造及試驗，並符合標準之要求，與無輻射污染                                                                                                                                               |  |  |  |  |  | Manager of Quality Assurance Department                                 |  |  |  |  |  |
| We hereby certify that material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification. |  |  |  |  |  | How Yu Shih                                                             |  |  |  |  |  |
| The material described above has been found with free of radiation by raw material supplier.                                                                                        |  |  |  |  |  |                                                                         |  |  |  |  |  |

\*01= Hardness Test  
\*02= Heat Treatment  
\*Gauge Length: 50mm

1MPa=1N/mm<sup>2</sup>=10bar=145psi=  
10.2kgf/cm<sup>2</sup>





# ZHEJIANG STELLAR PIPE INDUSTRY CO.,LTD

INDUSTRIAL PARK,XIAOZHI,QINGTIAN,323900,ZHEJIANG,CHINA  
TEL:8651267901092 FAX:8651267901095

## MILL TEST CERTIFICATES to EN 10204/3.1 PED 97/23 EC

PED Certificate no.:331/2007/MUC

Customer : UNIFIED ALLOYS  
Contract NO. : T15YKZ0807-01  
Specification : ASTM A213-14/ASME SA213-15/ASTM A269-14  
Steel Grade : TP316/316L  
Goods : STAINLESS STEEL SEAMLESS TUBE  
PO No. : VP-121862  
Cert No. : ST151017-57  
Delivery Condition : Solution Treated  
Appearance : Pickling

| Heat No.                                                                                                                                                                      |           | Chemical Composition (%)              |                                |                                                                     |                    |                                                    |                            |                             |                |                         |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------|--------------------------------|---------------------------------------------------------------------|--------------------|----------------------------------------------------|----------------------------|-----------------------------|----------------|-------------------------|--|
|                                                                                                                                                                               |           | C                                     | Si                             | Mn                                                                  | P                  | S                                                  | Cr                         | Ni                          | Mo             | Ti                      |  |
| Spec.                                                                                                                                                                         | Min.      |                                       |                                |                                                                     |                    |                                                    | 16.00                      | 10.00                       | 2.00           |                         |  |
|                                                                                                                                                                               | Max.      | 0.035                                 | 1.00                           | 2.00                                                                | 0.045              | 0.030                                              | 18.00                      | 14.00                       | 3.00           |                         |  |
| Ladle Analysis                                                                                                                                                                | 150417V01 | 0.021                                 | 0.27                           | 0.97                                                                | 0.032              | 0.004                                              | 16.57                      | 10.03                       | 2.04           |                         |  |
| Product Analysis                                                                                                                                                              |           | 0.014                                 | 0.43                           | 1.05                                                                | 0.039              | 0.004                                              | 16.19                      | 10.17                       | 2.01           |                         |  |
| Batch No.                                                                                                                                                                     |           | Size                                  |                                | Quantity                                                            |                    |                                                    |                            | Visual Examination          |                |                         |  |
| 4T150923-33                                                                                                                                                                   |           | 12.7*1.24*6096                        |                                | 100 PCS                                                             |                    | 226 KGS                                            |                            | 609.6 M                     |                | OK                      |  |
|                                                                                                                                                                               |           | 1/2**0.049*20FT                       |                                |                                                                     |                    |                                                    |                            | 2000 FT                     |                |                         |  |
| 4T150923-35                                                                                                                                                                   |           | 25.4*0.89*6096                        |                                | 9 PCS                                                               |                    | 31 KGS                                             |                            | 54.864 M                    |                | OK                      |  |
|                                                                                                                                                                               |           | 1**0.035*20FT                         |                                |                                                                     |                    |                                                    |                            | 180 FT                      |                |                         |  |
| 4T150831-02                                                                                                                                                                   |           | 25.4*1.24*6096                        |                                | 25 PCS                                                              |                    | 121 KGS                                            |                            | 152.4 M                     |                | OK                      |  |
|                                                                                                                                                                               |           | 1**0.049*20FT                         |                                |                                                                     |                    |                                                    |                            | 500 FT                      |                |                         |  |
| Mechanical Properties (Acc to ASTM A370)                                                                                                                                      |           |                                       |                                |                                                                     |                    |                                                    |                            |                             |                |                         |  |
| Test No.                                                                                                                                                                      |           | Tensile Strength<br>MPa               | Proof Strength<br>MPa<br>Rp0.2 | Elongation<br>A(%)                                                  | Flattening<br>Test | Ring<br>Tensile<br>Test                            | Drift<br>Expanding<br>Test | Ring<br>Expanding<br>Test   | Impact<br>Test | Hardness<br>Test<br>HRB |  |
| Spec.                                                                                                                                                                         | Min.      | 515                                   | 205                            | 35                                                                  |                    |                                                    |                            |                             |                | 90                      |  |
|                                                                                                                                                                               | Max.      |                                       |                                |                                                                     |                    |                                                    |                            |                             |                |                         |  |
| L82                                                                                                                                                                           |           | 580/585                               | 254/256                        | 53/54                                                               | GOOD               | /                                                  | GOOD                       | /                           | /              | 71/73                   |  |
| L83                                                                                                                                                                           |           | 595                                   | 263                            | 59                                                                  | GOOD               | /                                                  | GOOD                       | /                           | /              | 71/76                   |  |
| L84                                                                                                                                                                           |           | 575                                   | 236                            | 59                                                                  | GOOD               | /                                                  | GOOD                       | /                           | /              | 74/78                   |  |
| Leak Tightness Test                                                                                                                                                           |           |                                       |                                |                                                                     |                    |                                                    |                            |                             |                |                         |  |
| Hydrostatic Test<br>Acc to ASTM A1016                                                                                                                                         |           | Eddy Current Test<br>Acc to ASTM E426 |                                | Non-destructive Testing<br>Ultrasonic Test<br>Acc to ASTM E213      |                    | Intergranular Corrosion Test<br>Acc to ASTM A262-E |                            |                             |                |                         |  |
| /                                                                                                                                                                             |           | GOOD                                  |                                | /                                                                   |                    | /                                                  |                            |                             |                |                         |  |
| /                                                                                                                                                                             |           | GOOD                                  |                                | /                                                                   |                    | /                                                  |                            |                             |                |                         |  |
| /                                                                                                                                                                             |           | GOOD                                  |                                | /                                                                   |                    | /                                                  |                            |                             |                |                         |  |
| Additional Remarks:                                                                                                                                                           |           |                                       |                                |                                                                     |                    |                                                    |                            |                             |                |                         |  |
| 1.Country of Origin: China                                                                                                                                                    |           |                                       |                                | 2.No weld repair                                                    |                    |                                                    |                            | 4.100% PMI                  |                |                         |  |
| 3.Hardness Acc. to NACE MR0103/MR0175/ISO 15156                                                                                                                               |           |                                       |                                | 5.Solution Temperature :1050°C. Hold 30minutes.Rapid Water Cooling. |                    |                                                    |                            |                             |                |                         |  |
| We hereby certify that the material described above has been tested and complies with the terms of the Contract & the specification, and we confirm that P.M.I has been done. |           |                                       |                                |                                                                     |                    |                                                    |                            |                             |                |                         |  |
|                                                                                                                                                                               |           |                                       |                                | Dec/19/2015                                                         |                    |                                                    |                            |                             |                |                         |  |
|                                                                                                                                                                               |           |                                       |                                | Date                                                                |                    |                                                    |                            | Quality Technology Director |                |                         |  |